

ON THE GENUS *THAUMAPHRASTUS* BLAISDELL
(COLEOPTERA: THORICTIDAE).

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In describing the larva of *Thaumaphrastus* in the October 1949 number of this Bulletin, Wm. H. Anderson came to the conclusion that the genus belongs to the family Dermestidae, in which it forms a new subfamily. Anderson considered as quite possible that the genus was described in some other family under an older name.

The type of *Thaumaphrastus karanisensis* Blaisdell 1927 was found in a plant gall buried for the best part of 2000 years in the Egyptian town Karanis, whilst Anderson's additional material was bred from specimens found in a rice mill. It is interesting to note that *Thorictodes heydeni* Reitter was also first found in Egypt and was later rediscovered in rice in France; it has also been recorded from Algeria, Syria, Sudan, and Java and as introduced into Spain, Sweden (Jansson 1915, Ent. Tidskr. 36: 39) and Great Britain (Walker 1925, Ent. month. Mag. 61: 92). The species is carried by commerce (rice, ground-nuts, wheat, kapok seed, and grains of probably *Eleusine coracana* used for feeding fowls).

Anderson's excellent descriptions and figures of adult and larva show clearly that *Thaumaphrastus karanisensis* Blais. is identical with *Thorictodes heydeni* Reitt., 1875. A comparison of the description with those of Reitter (1875, Coleopt. Hefte 14: 54; 1881, Verh. z. b. Ges. Wien 31: 88) and Ganglbauer (1899, Käf. Mittel-eur. 3: 765) and of the figures of the adult with that of the pupa (Emden 1924, Treubia 6: 6)¹ and with a slide in my collection exclude any doubts, and similarly the descriptions of the larvae by Anderson and myself (l.c.) confirm the identity. The only discrepancies are that according to Anderson the adult has no eyes whilst Ganglbauer describes indistinct small eyes, and that my description of the larva speaks of one-segmented labial palpi, whilst these are two-segmented according to Anderson, and that my description does not mention the mandibular prosthema figured by Anderson. It would appear from a slide of the head of the adult that small not convex and not prominent eyes are present. It is

¹ For obvious reasons I did not see the proofs of that paper, and I therefore use this opportunity for stating that the last line of the second paragraph on p. 2 should read "Graf v. Vitzthum in München freundlichst als *Urodinychus* (*Gitodinychus*) *faber* Berl. bestimmte."

somewhat uncertain whether these faceted areas really represent eyes, and the late K. M. Heller (i.l.) considered the species which I have as blind. The prostheca of the larval mandible cannot be traced with certainty in the undissected exuvia, which is the only larval material in my possession, but it may very well be present, and I have now satisfied myself that the labial palpi are two-segmented as described by Anderson.

Since I described the larva of *Thorictodes* that of *Thorictus* has also become known (Reichensperger 1925, Verh. naturh. Ver. preuss. Rheinl. 82: 102), and especially the figure of the maxilla with its chitinous spatulate inner lobe seems to prove, like Ganglbauer's comparison of the adults, that *Thorictodes* and *Thorictus* are indeed closely related.

There only remains the systematic position of the Thorictidae to be discussed. Earlier authors placed them either near Histeridae or in Clavicornia, and Ganglbauer considered them as closely related to the Lathridiidae and Colydiidae. In 1924 (the paper was written in 1922) I was uncertain whether to place them in Clavicornia or near Tenebrionidae or near Cisidae and Anobiidae, but in subsequent papers (1924, Jahresber. Caesar and Loretz 1924: 173-174; 1928, Ent. Blätt. 24: 11-12; 1942, Ent. month. Mag. 78: 268) I came more and more to consider them with the Cisidae as a group transitional between Clavicornia and the families related to Anobiidae. The characters which approach them to the latter group will be found in my 1928 paper. Among them the well-developed epicranial suture, the absence of a mandibular mola, and the presence of a spatulate inner lobe of the maxilla are of special importance. The prostheca might seem to contradict this view, but a very similar prostheca has also been discovered in Bostrychini by Gardner (1933, Ind. Forest Rec. Ent. 18, 9: 2) and Anderson (1939, Journ. Wash. Ac. Sci. 29: 382).

At first sight this relationship with the Teredilia (Bostrychoidea) appears to differ fundamentally from Anderson's classification of *Thaumaphrastus* as a subfamily of Dermestidae. However, apart from the straight body and strong sclerotization, this family has many characters in common with the Teredilia, so many in fact that in my key to the groups of families (1942: 22) I found it necessary to fit special clauses into paragraphs 11 and 12 for separating the Dermestid part of the Dascilloidea from the Teredilia ("the inner lobe sometimes smaller with . . . spurs . . . , the tergites in this case well sclerotized" for the Dermestidae, and "or with the inner lobe ending in, or consisting of, a spur, and the tergites not sclerotized" for Thorictidae, Lyctidae, most Anthribidae, etc.). It thus

depends only on the point where the border line is to be drawn. By using the orthosomatic or cyrtosomatic shape instead of the unsclerotized integument the Thorictidae could easily be shifted from the Teredilia to the Dascilloidea. Alternatively the Dermestidae with their spurred inner lobe might be excluded from Dascilloidea and joined to the Teredilia. At any rate the relationship between Dermestidae, Thorictidae and Teredilia appears to be very real. In Böving and Craighead's phylogenetic conspectus (1931, Ent. Americ. (N.S.) 11, pl. 125) the Bostrychoidea and Platystomoidea are derived from the Cleroidea, obviously by way of the Dermestidae, which these authors include in Cleroidea. The relation between Dermestidae and Teredilia in the adult stage has been discussed by Crowson (1938, Trans. R. Ent. Soc. Lond. 87: 406; 1944, l.c. 94: 298-299), and the male copulatory organs of Dermestidae and Ptinidae (p. 529) and *Ptinus* and *Lyctus* (p. 534) have been stated by Sharp and Muir (1912, Trans. Ent. Soc. Lond. 1912) to be closely related, whilst that of Thorictidae resembles Lyctidae (Emden 1928: 12) and Dermestidae (Anderson 1949: 126).

The intermediate phylogenetic position of the Thorictidae between Dermestidae and Teredilia is thus evident in both the larval and adult stages. As *Thorictodes* and *Thorictus* together are sufficiently distinct, it is hardly necessary to unite the family either with Dermestidae or with one of the families of the Teredilia, and there only remains the problem to be solved whether the Dermestidae should be separated from the other Dascilloid (or Cleroid) families and united with the Teredilia, or whether the latter should be amalgamated with the Dascilloidea, or whether the relationship of the Dermestidae with the Dascilloidea is closer, so that they should be left in that group forming just the connecting link with one of the neighbouring groups, the Teredilia. It appears to me that this course is perhaps preferable on the basis of the available evidence. With regard to the Thorictidae the choice would then be whether to join them to the Dascilloidea or to the Teredilia, and the relations with the latter would appear to be closer.